Nucleus®
COCHLEAR IMPLANT SYSTEM

User Guide
for the ESPrit™ 3G
Speech Processor and Accessories

Nucleus®
COCHLEAR IMPLANT SYSTEMS

User Guide

for the ESPrit™ 3G speech processor and accessories

Part Number: N94722F Issue 2
January 2002

Contents

Welcome

This guide will tell you how to use and care for your ESPrit™ 3G speech processor and accessories.

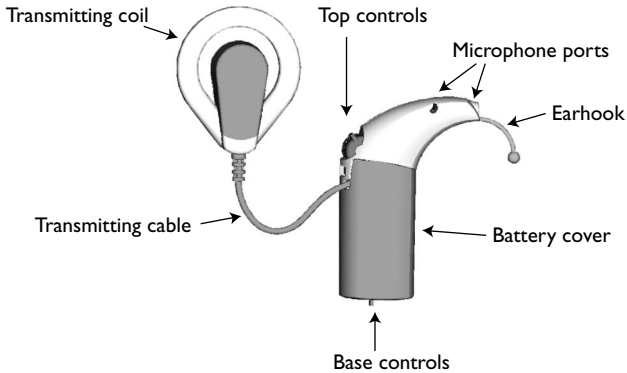


Figure 1: Your ESPrit 3G Speech Processor

Your ESPrit™ 3G Speech Processor

Top Controls

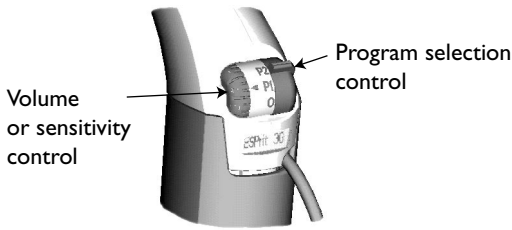


Figure 2: Top Controls

When programmed for sensitivity, the rotary control changes the level of sound picked up by the microphone. When programmed for volume, it adjusts the perception of loudness.

Base Controls

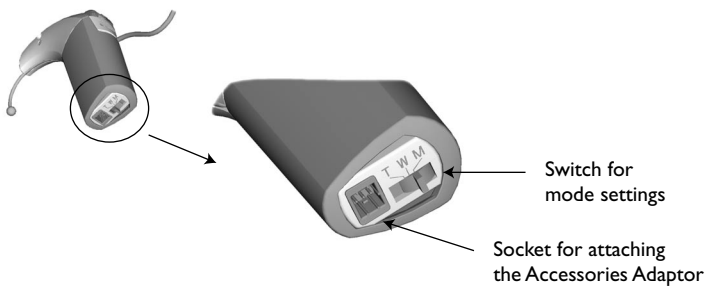


Figure 3: Base Controls

Using the Accessories Adaptor Socket

Your Accessories Adaptor plugs into the socket at the base of your ESPrit™ 3G.

Figure 4: Accessories Adaptor Socket

When the adaptor is not being used, a socket cover should be inserted into the socket.

> **Warning:**
> Store spare socket covers safely. These small parts may be hazardous if swallowed or may cause choking if inhaled.

Using the Mode Settings

To use the particular mode setting, move the mode setting switch at the base of the ESPrit 3G to the setting required.

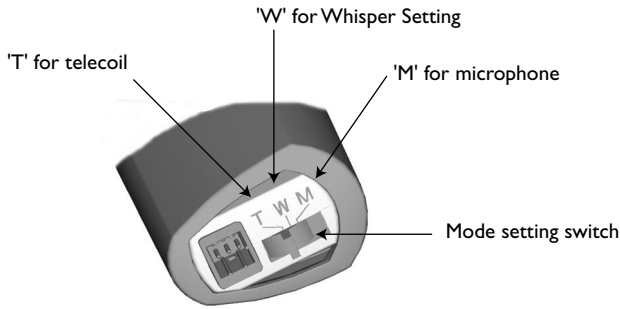


Figure 5: Mode Settings

Microphone Setting

The 'M' or microphone setting is the normal operating position, used where there are no specific or adverse listening conditions.

Whisper Setting

The 'W' or Whisper Setting makes soft sounds audible.

In-built Telecoil Setting

The 'T' setting activates your ESPrit 3G's in-built telecoil. It can be programmed to operate as either a telecoil alone, or as a mix of telecoil and microphone.

This in-built telecoil allows you to receive signals from a hearing aid compatible telephone, a room fitted with an induction loop, or a personal induction loop, such as a neck loop or cushion loop. The latter are commercially available devices.

The sound signal from an amplifier, TV or Hi-Fi can also be conveyed from an induction loop to the telecoil.

The Battery Cover

Removing the Battery Cover

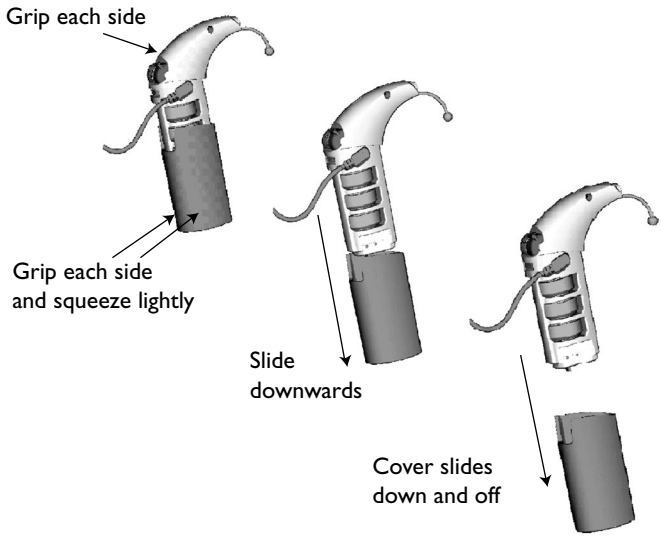


Figure 6: Removing the Battery Cover

Reading the Serial Number

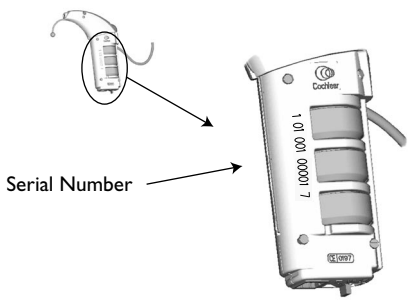


Figure 7: Serial Number

Earhooks

Choosing Earhooks

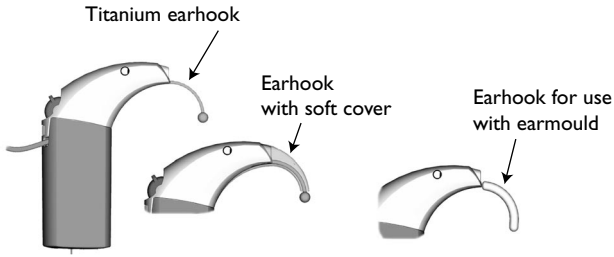


Figure 8: Earhooks Available

Changing the Earhook

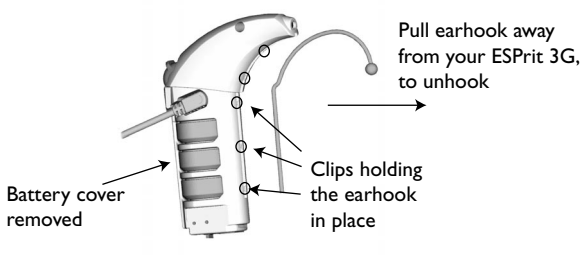


Figure 9: Removing the Earhook

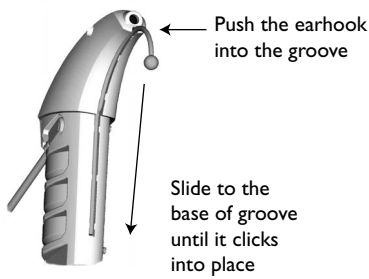


Figure 10: Replacing the Earhook

Transmitting Coil and Cable

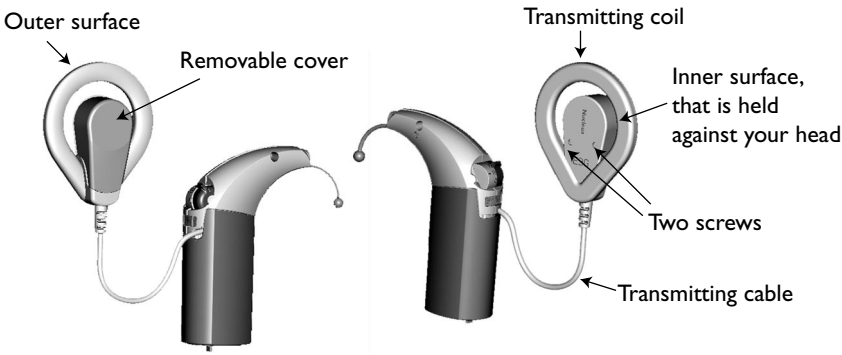


Figure 11: Transmitting Coil and Cable

Changing the Coil Cover

To change the cover of the transmitting coil:

1. Using the screwdriver provided, remove the screws from the back of the coil.
2. Take off the cover.
3. Making sure the magnet(s) and spacer(s) arrangement has not changed, replace with the cover of your choice.
4. Replace the screws.

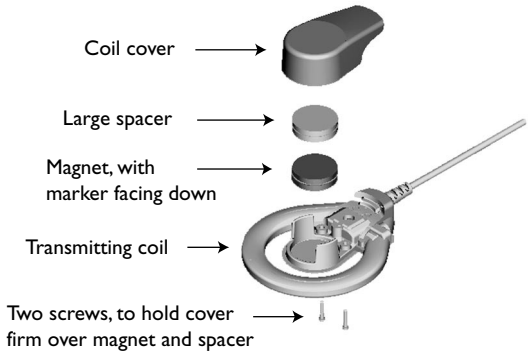


Figure 12: Magnet and Spacer Arrangement

Warnings:

Consult your clinician if you wish to change your magnet arrangement. If the magnet strength is too weak the coil may fall off. If it is too strong, it may cause discomfort or skin irritation.

Store screws, spare magnets and plastic spacers safely. Small parts may be hazardous if swallowed or may cause choking if inhaled.

Attaching the Transmitting Coil and Cable to your ESPrit 3G

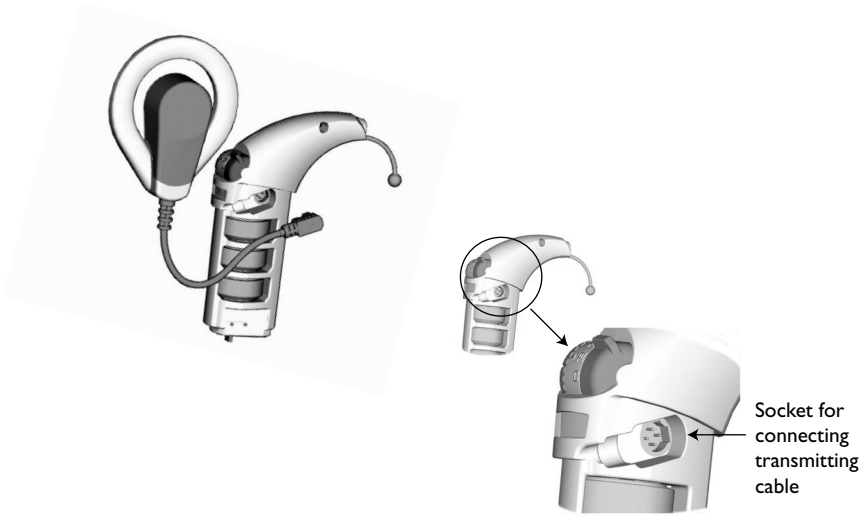


Figure 13: Attaching the Transmitting Coil and Cable

Batteries

Choosing your Batteries

Your ESPrit 3G uses three high power 675 size hearing-aid type batteries (button type cells). High Power 675 Zinc Air batteries are recommended. However, in humid and cold conditions Silver Oxide S76 batteries may be more reliable.

Use only battery types recommended by your clinician, or Cochlear. Other types may not have sufficient power to allow your ESPrit 3G to function properly.

Warning:

Batteries can be harmful if swallowed. Ensure that batteries are kept out of reach of young children. If swallowed, seek prompt medical attention at the nearest emergency centre or Poisons Information Centre.

Note:
The ESPrit 3G requires three good batteries to operate. It only takes one bad or substandard battery to stop the processor from working. When replacing exhausted batteries, always replace all three.

High Power 675 Zinc Air batteries are sealed, usually with a tab.

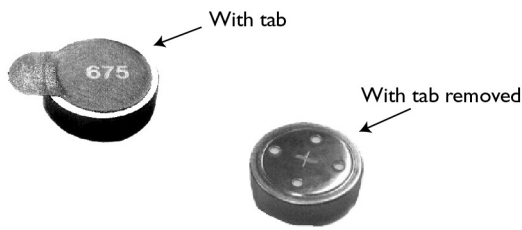


Figure 14: High Power Zinc Air Batteries

The seal should be removed before use for at least one minute, to allow for air circulation.

Silver Oxide S76 batteries do not have holes, are not sealed and so do not require air circulation. Follow the instructions and warnings for the brand you are using.

Replacing your Batteries

Batteries should be replaced when the low battery warning 'beeps' are heard, or the sound you are hearing stops, or becomes intermittent. Refer to the *Troubleshooting* section for further information.

Immediately remove batteries that do not work. Over a period of time Zinc Air batteries may leak corrosive fluids. These can damage your ESPrit 3G.

To change the batteries:

1. Remember to remove their seal and let them stand for one minute.
2. Turn off the speech processor.
3. Remove the battery cover: slide it down the ESPrit 3G. See *Removing the Battery Cover* section.
4. Remove the old batteries by tipping the ESPrit 3G to one side. They slide out from one side only.

   If the batteries are a little tight, and difficult to remove, apply a little pressure from the opposite side. Alternately, use your transmitting coil's magnet to draw the batteries out.

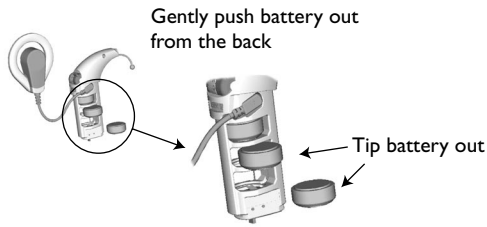


Figure 15: Removing the Batteries

5. Using the cleaning brush, regularly clean the battery area and contacts, to prevent a build up of grime deposits. *Never use abrasive materials or a blade.*
6. Slide the new batteries into place.
7. Replace the battery cover by sliding it up from the bottom until it clips into place.

   They only fit when:

   - Inserted from the side where the transmitting coil attaches, and
   - When the positive battery terminal (the side with the holes) faces up.

Note:
Dispose of used batteries in accordance with your local regulations.

Accessories

The following accessories, or wired assistive listening devices, can be connected to your ESPrit™ 3G using the Accessories Adaptor:

- Lapel microphone, to improve communication in noisy environments.
- FM cable, to transfer audio signals from a commercially available FM listening system to your ESPrit 3G.
- TV/Hi-Fi cable, to connect a TV, stereo or personal computer to your ESPrit 3G.
- Personal Audio cable, to connect battery powered equipment to your ESPrit 3G.
- External telecoil, for when the local environmental noise does not allow the in-built telecoil to process sounds.

> **Note:**
> The above accessories (devices) may not be available in all regions.

In addition, commercially available wireless technology assistive listening devices you may want to try include:

- Induction loop systems
- FM systems
- Infrared light (IR) systems

Your in-built telecoil operates with induction loop systems.

Unless programmed otherwise, sound can be heard simultaneously from both your ESPrit 3G microphone and the device, when using either the FM, TV/Hi-Fi, or Personal Audio cable (audio mixing). Use the rotary volume/sensitivity control to obtain a good balance.

Accessories Adaptor

Using the Accessories Adaptor

The Accessories Adaptor plugs into the socket at the base of the ESPrit 3G.

The following then attach to the Accessories Adaptor:

- Accessory Adaptor cable
- lapel microphone
- FM cable
- external telecoil

For a list of FM cables contact your Cochlear office.

In addition, the TV/Hi-Fi cable and Personal Audio cable attach to the Accessory Adaptor cable.

Monitor earphones, for use by your clinician, family and friends to check if the microphone is working correctly, can be attached using the 3 pin socket on the side of the adaptor.

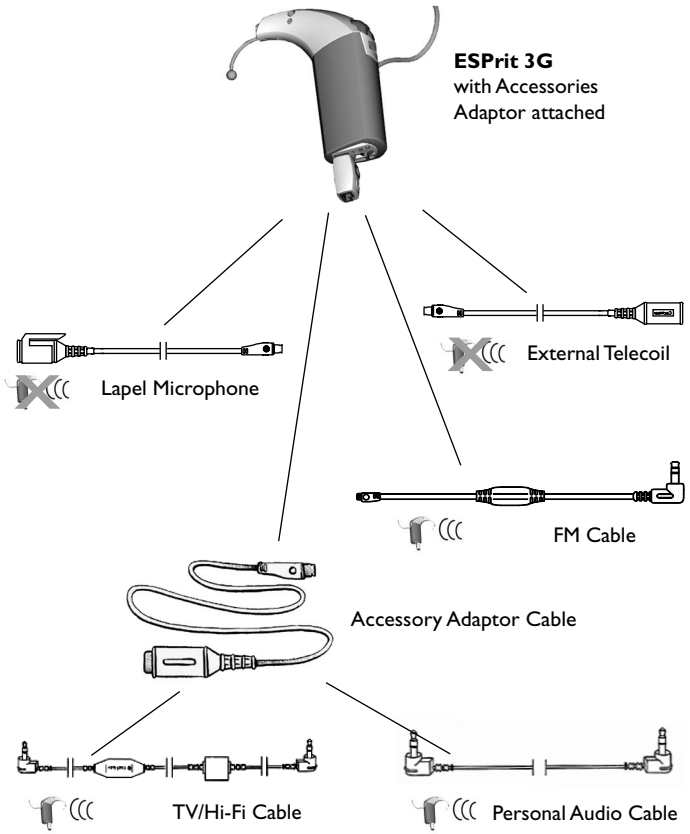


Figure 16: Wired Assistive Listening Devices

Using an Accessory

Switch your ESPrit 3G 'Off' before you attach or remove the accessory, and then 'On' again after the accessory has been attached or removed. This will reset the connection within your ESPrit 3G.

To use an accessory:

1. Turn off the ESPrit 3G (top controls) and remove it from your head.

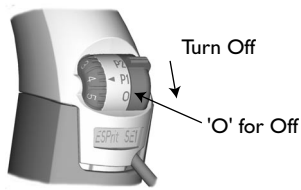


Figure 17: Turning Off your ESPrit 3G

2. Remove the socket cover from your Accessories Adaptor socket, at the base of your ESPrit 3G.

   Warning:
   Store spare socket covers safely. These small parts may be hazardous if swallowed or may cause choking if inhaled.

3. Push the adaptor firmly into the socket at the base of the ESPrit 3G, until it snaps into place.

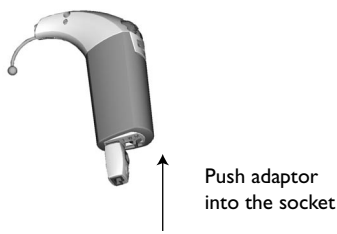


Figure 18: Adaptor Attached to your ESPrit 3G

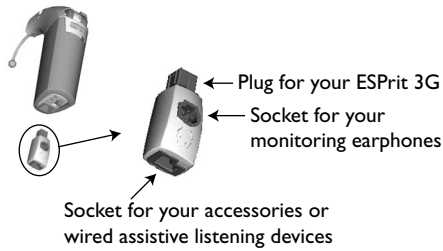


Figure 19: Accessories Adaptor

4. Attach the accessories and/or monitor earphones.

5. Place your ESPrit 3G back on your head and switch it to P1 or P2 (top controls).

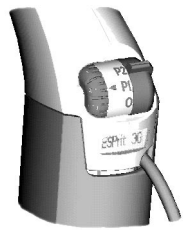


Figure 20: Re-setting your Top Controls

6. Set the sensitivity or volume control initially to four (4). Your clinician will tell you the approximate range of sensitivity or volume you should use.

7. Increase or decrease the sensitivity or volume control to the desired level.

If your ESPrit 3G does not work, switch it 'Off' and 'On' again. This will reset your ESPrit 3G.

Care and Maintenance

Cleaning

Cleaning External Parts

Regular cleaning prevents dirt building up.

Use the cleaning brush provided to clean both the internal and external parts. In particular, clean the battery contacts. Wipe external parts gently with an alcohol swab or a cloth slightly dampened with a mild detergent.

Cleaning the Microphone

The microphone ports should be kept clear, clean and dry. It is important to keep out both moisture and dirt.

Regularly use the microphone puffer to clean the microphone. From time to time, *gently* shake your ESPrit™ 3G to remove any moisture and dirt.

If it is necessary to clean the microphone ports more extensively, gently clean the edge of the openings using a cotton bud or cotton wool swab. Be careful not to push too far down the microphone port.

> **Caution:**
> Never push anything sharp down the microphone ports. To do so could permanently damage the microphone diaphragm.

Longer Term Storage

When not using your ESPrit 3G:

- Remove the batteries from the battery compartment.
- Store your ESPrit 3G and transmitting coil and cable in your ESPrit 3G case, with an activated drying capsule.

> **Caution:**
> Over a period of time, zinc air batteries may leak corrosive fluids which could damage your ESPrit 3G.

To reduce the risk of damage from a leaking battery:

- Remove depleted batteries immediately.
- Remove batteries before storage of your ESPrit 3G if you will not be using it for a long period of time.

Other Do's and Don'ts

The following situations can cause damage to your ESPrit 3G. If you still experience difficulties after attempting these suggestions, contact your clinician, implant centre or nearest Cochlear office to arrange repair.

Using Makeup and Hair Spray

Take off your ESPrit 3G when applying powder, makeup or hairspray. These substances can impair the operation of your ESPrit 3G.

Avoiding Sand or Dirt

Avoid getting sand or dirt into any part of the system. If you do, shake out as much sand or dirt as possible.

Avoiding Water

Do not wear any external part of your cochlear implant system while showering or bathing. Cochlear cannot guarantee that it will be able to repair any water-damaged part.

If Dropped in Water

If you drop your speech processor into water, take the following steps *as soon as possible,* to minimize damage:

1. Remove the batteries.
2. If dropped in dirty, contaminated or salt water rinse briefly with running drinking water.

   If possible, position your ESPrit 3G under the running water as closely as possible to mirror the direction in which it had been originally immersed in the water.

   In particular, salt can cause damage to the microphone and switches of your ESPrit 3G.
3. Gently shake off as much water as you can.
4. Place the ESPrit 3G to dry in your ESPrit 3G case with an activated drying tablet.
5. Close your ESPrit 3G case, and leave overnight.
6. Test to check the sound quality the next day.

If the sound quality has deteriorated, return your water damaged ESPrit 3G for repair *as soon as possible* to your clinician, implant centre or nearest Cochlear office.

Troubleshooting

Overview

Problems in hearing using your ESPrit™ 3G can arise from any of the following:

- the cochlear implant system – the ESPrit 3G, the transmitting coil and cable, or the cochlear implant
- the program(s) inside your ESPrit 3G
- the listening environment, including electromagnetic interference
- other factors such as your general health and tinnitus (ringing in the ears)

Problems in any of these areas can lead to no sound, or intermittent sound. There are several system checks you may make that will often resolve or identify problems. At any time when you are unable to resolve any problem with your cochlear implant system, contact your clinician.

The Cochlear Implant System

This manual gives suggestions for dealing with faults with your ESPrit 3G, transmitting coil and cable only. The Signal Check and Monitor Earphones are optional accessories for testing your implant system. Alternately, interference from other electromagnetic sources can affect your sound quality.

Your Programs

Your programs are established by your clinician. They should be checked regularly, and sometimes adjusted.

Listening Environments

Soft speech and loud background noise may influence your ability to understand speech in a particular environment. Sometimes room acoustics that cause echoes and background noise cannot be resolved.

The Whisper Setting ('W' on the base of your ESPrit 3G) may assist in soft speech situations.

Your in-built telecoil and/or other assistive listening devices may help in other situations.

Electromagnetic Interference

The cables of your ESPrit 3G act like antennae that may pick up environmental electromagnetic fields (EMI), which can cause intermittent buzzing, or distorted speech.

These fields can be produced by all types of electrical and electronic devices.

Some of the strongest sources of EMI include:

- radio and TV transmission towers
- shopping centre and airport security systems
- computer or television monitors
- some digital mobile telephones
- hairdryers and electrical shavers
- power tools

If you hear intermittent buzzing or distorted speech, look for electronic equipment that may be the source of EMI, and move away from it.

Other Factors

There are many other factors not related to the performance of your ESPrit 3G that may influence your ability to understand speech in a particular situation. These include:

- tinnitus (ringing in the ears)
- loss of concentration due to illness or fatigue
- quick changes of topic in conversation
- difficulty in lip-reading the speaker due to poor position of the speaker or poor lighting

If you continue to have problems, contact your clinician.

Steps to Identify the Fault

Follow the steps below to identify where the fault may be. After each step, check to see if you can hear sound.

If you still hear no sound after taking the following actions, contact your clinician, implant centre or your nearest Cochlear office.

Switches and Controls

Take the following actions to check the switches and controls:

- Switch the ESPrit 3G 'Off' for about three seconds, and then 'On' again (top control: O, P1, P2).
- Adjust the volume or sensitivity control (top control).
- Adjust the mode switch to the correct setting for your current use (base control: T, W, M).

Batteries

Take the following actions to check your batteries' operation:

- If you experience intermittencies or cut outs it is most likely time to change you batteries.
- Clean the battery contacts using the cleaning brush provided.
- When using new High Power Zinc Air batteries, be sure to wait for one minute after removing the protective tabs before placing them into the ESPrit 3G.

> **Note:**
> A single dead battery will cause the ESPrit 3G to cease transmitting signals.
>
> Zinc air batteries may cease to work in very cold, or extremely humid conditions. In these instances, it is recommended that you use silver oxide batteries.

Transmitting Coil and Cable

Take the following actions to check your transmitting coil and cable's operation:

- The transmitting coil is correctly positioned over your implant.
- The transmitting coil is not damaged.
- The cable is not bent, twisted, worn or broken.
- The cable plug is secure in the socket of your ESPrit 3G.

If there is no signal, replace the transmitting coil and cable, and check if you can hear any sound.

If there is still no signal, test using the Signal Check. Refer to the *Signal Check* section for further information.

Microphone

If the output signal from the microphone diminishes significantly:

1. Use the microphone puffer to dry any moisture.
2. Attach and use the lapel microphone. If you can hear sound your ESPrit 3G microphone is faulty. As a temporary measure you can continue to use the lapel microphone until you are able to have your ESPrit 3G microphone repaired.
3. Using the monitor earphones, have a hearing person, e.g. friend, parent or caregiver, check the microphone signal (sound output). Refer to the *Monitor Earphones*

section for further information.

If the output signal is still not satisfactory, return the ESPrit 3G to your Cochlear representative or distributor.

Attached Accessory

If there is no sound being received from an attached accessory, in addition to the above, check:

- The accessory and cables are properly connected.
- The accessory equipment is switched 'On', and the setting is appropriate.
- Switch your ESPrit 3G 'Off' and then 'On' again to ensure your ESPrit 3G has registered that the accessory has been attached.

Moisture

Use a soft clean cloth to remove any moisture. Wipe the ESPrit 3G including the battery cover and battery contacts, and the transmitting coil.

Place your ESPrit 3G in your ESPrit 3G case with an activated drying capsule to dry out any moisture.

Optional Monitoring Accessories

Signal Check

The Signal Check is used to check whether the transmitting coil is sending a signal across the skin to the implant.

To check the signal:

1. With your ESPrit 3G on your head, turn 'On' your ESPrit 3G and select your normal program settings.
2. Place the Signal Check over the transmitting coil.

Figure 21: Signal Check

A red light in the centre of the Signal Check will light up when the transmitting coil is sending the signal or 'sound'.

If the centre light does not light up 'red' the signal is not going beyond the transmitting coil, i.e. there is a fault in the system. Follow *Steps to Identify the Fault* above to try to determine the cause of the failure.

Monitor Earphones

Monitor earphones are an optional accessory (in some countries) available from Cochlear, for monitoring the microphone of your ESPrit 3G.

These allow a hearing person to check the sound being

received by the ESPrit 3G microphone, and its internal amplifier. They are particularly useful for checking the microphone output of a child's ESPrit 3G.

> **Note:**
> The ESPrit 3G monitor earphones can only be used to detect a signal from the microphone. They do not 'hear' the 'processed' sound and therefore cannot be used to assess the quality of the signal, or represent the processed sound, as heard by the recipient.

To use the monitor earphones:

1. Turn off the ESPrit 3G.
2. Attach the Accessories Adaptor to the base of your ESPrit 3G.
3. Attach the monitor earphones to the side socket of the Accessories Adaptor.
4. Place the ESPrit 3G on your head.
5. Place the monitor earphones over the ears of the hearing person.
6. Turn 'On' the ESPrit 3G.
7. Holding the microphone approximately 15 to 20 cm (8 in.) from the sound source, turn the volume control to between '3' and '4', or until the sound is heard.

If no sound is heard through the monitor earphones, contact your clinician for advice.

Warnings and Precautions

This section describes the warnings and precautions that apply to your cochlear implant system. Read this section carefully to ensure that you understand the care of your system.

Discuss these warnings and precautions with your physician before undergoing any major medical procedure.

Warnings

Medical Treatments Generating Induced Currents

Some medical treatments generate induced currents that may cause tissue damage or permanent damage to the cochlear implant. Warnings for specific treatments are given below.

- **Electrosurgery:** Electrosurgical instruments are capable of inducing radio frequency currents that could flow through the electrode array. **Monopolar** electrosurgical instruments must **not** be used on the head or neck of a cochlear implant patient as induced currents could cause damage to cochlear tissues or permanent damage to the implant. **Bipolar** electrosurgical instruments may be used on the head and neck of patients, however, the cautery electrodes must not contact the implant and should be kept more than 1 cm (~ ½ in.) from the extracochlear electrodes.

- **Diathermy:** Do not use therapeutic or medical diathermy (thermopenetration) using electromagnetic radiation (magnetic induction coils or microwave). High currents induced into the electrode lead can cause tissue damage to the cochlea or permanent damage to the implant.

  Medical diathermy using ultrasound may be used below the head and neck.

- **Neurostimulation:** Do not use neurostimulation directly over the cochlear implant. High currents induced into the electrode lead can cause tissue damage to the cochlea or permanent damage to the implant.

- **Electroconvulsive Therapy:** Do not use electroconvulsive therapy on a cochlear implant patient under any circumstances. Electroconvulsive therapy may cause tissue damage to the cochlea or damage to the cochlear implant.

- **Ionizing Radiation Therapy:** Do not use this therapy directly over the cochlear implant because it may cause damage to the implant.

- **Magnetic Resonance Imaging (MRI):** Magnetic Resonance Imaging (MRI) is contraindicated except under the circumstances described below. Do not allow a patient with a cochlear implant to be in a room where an MRI scanner is located except under the following special circumstances.

  The Nucleus® cochlear implant is now designed with a removable magnet and specific characteristics to enable it to withstand MRI up to 1.5 tesla. However, many

Nucleus® 22 cochlear implants do not have a removable magnet. For patients with one of these implants MRI is contraindicated and they should not be allowed to enter a room where an MRI scanner is located.

To check that the patient has a Nucleus cochlear implant with a removable magnet, the physician should use an X-ray to check the radiopaque lettering on the implant. There are three platinum letters printed on each implant. If the middle letter is a 'C', 'H', 'J', 'L', 'P' or 'T' the implant has a removable magnet.

If the cochlear implant magnet is in place, it must be removed surgically before the patient undergoes an MRI procedure as tissue damage may occur if the recipient is exposed to MRI. Once the magnet has been removed, MRI can be performed. The patient must take off the speech processor and headset before entering a room where an MRI scanner is located.

Once the magnet is surgically removed, the quality of MRI will be affected by the metal in the cochlear implant. Image shadowing may extend as far as 6 cm (~ 2 ½ in.) from the implant, thereby resulting in loss of diagnostic information in the vicinity of the implant.

If you require additional information about removal of the magnet, please contact Cochlear.

Loss of Residual Hearing

Insertion of the electrode into the cochlea will result in complete loss of residual hearing in the implanted ear.

Long-term Effects of Electrical Stimulation by the Cochlear Implant

Most patients can benefit from electrical stimulation levels that are considered safe, based on animal experimental data. For some patients, the levels needed to produce the loudest sounds exceed these levels. The long-term effects of such stimulation in humans are unknown.

Small Parts Hazard

Parents and caregivers should be counselled that the external implant system contains small parts that may be hazardous if swallowed or may cause choking if inhaled.

Battery Ingestion

Batteries can be harmful if swallowed. Ensure that batteries are kept out of reach of young children. If swallowed, seek prompt medical attention at the nearest emergency centre or Poisons Information Centre.

Head Trauma

A blow to the head in the area of the cochlear implant may damage the implant and result in its failure. Young children who are developing their motor skills are at greater risk to receive an impact to the head from hard objects (e.g. a table or chair).

Precautions

If you experience a significant change in performance or the sound becomes uncomfortable, turn off your speech processor and contact your implant centre.

Use the cochlear implant system only with the approved devices and accessories listed in this manual.

The speech processor and other parts of the system contain complex electronic parts. These parts are durable but must be treated with care. The speech processor must not be opened by anyone other than Cochlear's qualified service personnel or the warranty will be invalidated.

Each speech processor is programmed specifically for each individual. Never wear another person's speech processor or lend yours to another user. Using another person's speech processor may result in uncomfortably loud or distorted sounds.

Do not operate the speech processor at temperatures above +40° C (+104° F) or less than +5° C (+41° F).

Do not store the speech processor at temperatures above +50° C (+122° F) or less than -20° C (-4° F).

The speech processor sound quality may be intermittently distorted when you are within approximately 1.6 km (1 mile) of a radio or television transmission tower. The effect is temporary and will not damage the speech processor.

Theft and Metal Detection Systems

Devices such as airport metal detectors and commercial theft detection systems produce strong electromagnetic fields. Some cochlear implant recipients may experience a distorted sound sensation when passing through or near one of these devices. To avoid this, turn off the speech processor when in the vicinity of one of these devices.

The materials used in the cochlear implant may activate metal detection systems. For this reason, recipients should carry the Cochlear Implant Patient Identification Card with them at all times.

Electrostatic Discharge

A discharge of static electricity can damage the electrical components of the cochlear implant system or corrupt the program in the speech processor.

If static electricity is present (e.g. when putting on or removing clothes over the head or getting out of a vehicle), cochlear implant recipients should touch something conductive (e.g. a metal door handle) before the cochlear implant system contacts any object or person.

Prior to engaging in activities that create extreme electrostatic discharge, such as playing on plastic slides, the speech processor and headset should be removed. Clinicians should use an anti-static shield on the computer monitor when programming a cochlear implant recipient.

Mobile Telephones

Some types of digital mobile telephones (e.g. GSM) may interfere with the operation of the external equipment. As a result, cochlear implant recipients may perceive a distorted sound sensation when in close proximity, 1 - 4 m (3 - 12 ft), to a digital mobile telephone in use.

Air Travel

Some airlines request that passengers turn off electrical equipment, such as laptop computers, during take-off and landing or whenever the seat belt sign is illuminated. Your speech processor is a computer and therefore it should be turned off when such a request is made. You should notify airline personnel of your hearing impairment so they can alert you to safety measures.

Other Information

Registration

In accordance with international practice and regulatory legislation, each component of the cochlear implant system is shipped with a registration card. Registering your cochlear implant system secures your warranty rights and enables Cochlear to track all devices for regulatory and product improvement purposes.

Also provided is a patient identification card, which you should carry at all times.

The implant centre and the cochlear implant user are responsible for correctly completing both the registration card and the patient identification card. Please return registration cards to Cochlear within 30 days of receiving the cochlear implant system.

This information is collected and used in accordance with legal requirements concerning data protection.

Certification and Applied Standards

The Nucleus® 24 cochlear implant systems fulfil the essential requirements listed in Annex 1 of the EC directive 90/385/EEC on Active Implantable Medical Devices as last amended by EC Directive 93/68/EEC. They were approved for CE-Mark according to Annex 2 by Notified Body 0197 in 1995/1996 (Nucleus® 24 system).

CE 0197

International Labelling Symbols

The symbols in the following table are found on the ESPrit™ 3G, and the ESPrit 3G components and packaging.

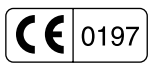
Symbol	Meaning
	**See Instructions**
	**Fragile**
	**Temperature Limit**
	**Humidity Limit**
	**CE Registration Mark**

Table 1: International Labelling Symbols

Cochlear Ltd (ABN 96 002 618 073) 14 Mars Road, Lane Cove NSW 2066, Australia
Tel: 61 2 9428 6555 Fax: 61 2 9428 6352

Cochlear Corporation
400 Inverness Drive South
Suite 400
Englewood CO 80112
USA

Tel: 1 303 790 9010
Fax: 1 303 792 9025

Cochlear Europe Ltd
22-24 Worple Road
Wimbledon
London SW19 4DD
United Kingdom

Tel: 44 20 8879 4900
Fax: 44 20 8946 9066

Cochlear AG
Margarethenstrasse 47
CH - 4053 Basel
Switzerland

Tel: 41 61 205 0404
Fax: 41 61 205 0405

Cochlear GmbH
Karl-Wiechert-Allee 76A
D-30625 Hannover
Germany

Tel: 49 511 542 770
Fax: 49 511 542 7770

Nihon Cochlear Co Ltd
Ochanomizu-Motomachi Bldg
2-3-7 Hongo, Bunkyo-Ku
Tokyo 113-0033
Japan

Tel: 81 3 3817 0241
Fax: 81 3 3817 0245

Cochlear (HK) Ltd
21F Shun Ho Tower
24-30 Ice House Street
Central
Hong Kong

Tel: 852 2530 5773
Fax: 852 2530 5183

www.cochlear.com

PRINTED IN AUSTRALIA
N94722F ISS2 JAN2002